

Remarks/Arguments:

Claims 1-3 and 5-10 are pending and stand rejected. In this response, Applicants are amending claims 1, 6, 8 and 10. Accordingly, claims 1-3 and 5-10 are presented for reconsideration. No new matter has been added.

Applicants wish to thank Examiner Bayou and Primary Examiner Kramer for conducting a telephonic interview with the Applicants' representatives on April 13, 2010. During the course of this interview, Applicants' representatives and the Examiners discussed the prior art references and proposed claim amendments. During this interview it was agreed that the discussed claim amendments overcame the cited prior art; one of those amendments appears below.

Applicants' invention is drawn to a hermetic compressor having grooves provided at an upper side and a lower side of the outer circumference of a piston. The outer shape of the grooves communicates with a space in the hermetic container at least when the piston is in the bottom dead center.

Claim Rejections under 35 U.S.C. § 112

Claims 6, 8 and 10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 6 has been amended to recite "said first and second grooves having a semicircular shape." Likewise, claim 8 and claim 10 have been amended to now read "wherein a through-hole is disposed at about the center of the grooves." Applicants respectfully request withdrawal of the 35 U.S.C. § 112 rejection.

Claim Rejections under 35 U.S.C. § 103

Claims 1-3 and 6-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 2003-065236 (hereinafter "Katayama") in view of U.S. Patent No. 6,431,053 (hereinafter "Strikis") or in view of U.S. Patent No. 5,839,351 (hereinafter "Nakada"). Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Katayama in view of Strikis and further in view of U.S. Patent No. 5,092,747 (hereinafter "Irino"). Applicants respectfully submit, however, that the claims are patentable over the art of record for at least the reasons set forth below.

Applicants' invention as recited by claim 1, includes features which are neither disclosed nor suggested by the art of record, namely:

... the **outer shape of the grooves is a contiguous semicircular shape** extending toward a skirt side of the piston ...

These features are found in Applicants' specification, for example, at page 11, line 7 to page 12, line 10 and in Figs. 2 and 3. No new matter has been added.

According to claim 1, the present invention relates to a hermetic compressor as described in the attached amendment. The hermetic compressor has grooves in a **contiguous** semicircular shape placed at the outer circumference of the piston. This contiguous semicircular shape includes a first outer shape extending toward the skirt side of the piston, a second outer shape parallel to the top surface of the piston and a third outer shape linking the first outer shape and the second outer shape.

The Office Action relies upon Katayama as disclosing:

... grooves (23e) are provided at an upper side and a lower side of the outer circumference of the piston, and of an outer shape of the grooves, the outer shape of the grooves communicating with a space in the hermetic container at least when the piston is in a bottom dead center is a shape not forming a parallel line to an axial center of the piston when the grooves are developed in a plane

The Office Action relies upon Strikis as disclosing:

[t]he outer shape of the grooves (82,84) is a semicircular shape extending toward a skirt side of the piston ... and the semicircular shape includes a first outer shape extending toward the skirt side of the piston, a second outer shape parallel to the top surface of the piston, and a third outer shape linking the first outer shape and the second outer shape

The Office Action relies upon Nakada as disclosing:

[t]he outer shape of the grooves (5) is a semicircular shape extending toward a skirt side of the piston ... and the semicircular shape includes a first outer shape extending toward the skirt side of the piston, a second outer shape parallel to the top surface of the piston, and a third outer shape linking the first outer shape and the second outer shape

The Office Action asserts that "[i]t would have been obvious to one skilled in the art at the time the invention was made to modify the piston grooves of Katayama by making the[m] in a semicircular fashion as taught by Strikis or Nakada in order to easily distribute the oil. Katayama in view of either Strikis or Nakada." Applicants respectfully submit that Katayama, Strikis or Nakada, alone or in any combination, fail to disclose or suggest a groove with a **contiguous** semicircular shape placed on the outer circumference of the piston.

Katayama as shown in FIG. 5, fails to show grooves wherein the outer shape of the grooves is in a contiguous semicircular shape extending toward a skirt side of the piston. Strikis and Nakada, which are cited to overcome this deficiency in Katayama, also fail to disclose grooves that are in a contiguous semicircular shape. The grooves 82 shown in Strikis are not in a contiguous semicircular shape that extends toward a skirt side of the piston. Furthermore, the grooves 5 of Nakada are not in a contiguous semicircular shape.

In contrast, Applicants' invention as recited in claim 1 requires that the outer shape of the grooves is in a contiguous semicircular shape extending toward a skirt side of the piston, and the semicircular shape includes a first outer shape extending toward the skirt side of the piston, a second outer shape parallel to the top surface of the piston, and a third outer shape linking the first outer shape and the second outer shape.

It is because Applicants include the features of the outer shape of the grooves being a contiguous semicircular shape extending toward a skirt side of the piston and the semicircular shape includes a first outer shape extending toward the skirt side of the piston, a second outer shape parallel to the top surface of the piston and a third outer shape linking the first outer shape and the second outer shape that the following advantages are achieved. This design allows sufficient oil supply to the groove to improve lubricity as described in the specification at page 11, line 7 to page 12, line 10, and the refrigeration capacity of the hermetic compressor is increased. Further, these features prevent local wear as described in the specification at page 12, lines 11-15.

Accordingly, Katayama in view of Strikis or Nakada fails to disclose or suggest every feature of claim 1. Applicants respectfully request therefore the withdrawal of the 35 U.S.C. §103(a) rejection and allowance of claim 1.

Independent claim 6, while not identical to claim 1, includes features similar to claim 1. Accordingly, claim 6 is also patentable for at least the reasons set forth above, with respect to

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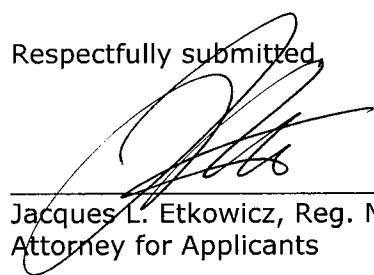
claim 1. Claims 2-3 and 7-10 include all of the features of claims 1 and 6 from which they depend. Thus, claims 2-3 and 7-10 are also patentable over the art of record for at least the reasons set forth above.

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Katayama in view of Strikis and further in view of Irino. Irino discloses a fluid compressing apparatus and is cited in the Official Action as disclosing the use of hydrocarbon refrigerants in a refrigerant compressor.

Claim 5 includes all of the features of claim 1 from which it depends. Irino, however, fails to disclose a piston with grooves wherein the outer shape of the grooves is in a contiguous semicircular shape extending toward a skirt side of the piston, and the semicircular shape includes a first outer shape extending toward the skirt side of the piston, a second outer shape parallel to the top surface of the piston, and a third outer shape linking the first outer shape and the second outer shape. Therefore, Irino fails to make up for the deficiencies of Katayama, Strikis and Nakada. Accordingly, claim 5 is also patentable over the art of record for at least the reasons set forth above.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,


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